

App. No. 10/806,727
Reply to Final Office Action of October 20, 2004

Amendments to the Claims:

1 to 12. (canceled).

13. (previously presented) A method for repairing a high pressure turbine component, the method comprising the steps of:

 cold gas-dynamic spraying powder material to repair degradation in at least a portion of the high pressure turbine component;

 vacuum sintering the high pressure turbine component after the cold gas-dynamic spraying step;

 performing a hot isostatic pressing on the high pressure turbine component after the vacuum sintering step; and

 heat treating the high pressure turbine component after performing the hot isostatic pressing step.

14. (original) The method of claim 13 wherein the high pressure turbine component comprises a turbine blade.

15. (original) The method of claim 14 wherein the turbine blade comprises a tip, and wherein the cold gas-dynamic spraying is performed on the tip.

16. (original) The method of claim 14 wherein the turbine blade comprises a leading edge, and wherein the cold gas-dynamic spraying is performed on the leading edge.

17. (original) The method of claim 14 wherein the turbine blade comprises a platform, and wherein the cold gas-dynamic spraying is performed on the platform.

18. (original) The method of claim 14 wherein the turbine blade comprises a z-notch shroud, and wherein the particles are sprayed on the z-notch shroud.

19. (original) The method of claim 13 wherein the step of performing a vacuum sintering comprises sintering in a vacuum for between 2 and 4 hours at temperatures of between 2050 degrees F and 2300 degrees F.

20. (previously presented) The method of claim 13 wherein the step of performing a hot isostatic pressing on the turbine component comprises pressing for between 2 and 4 hours at temperatures of between 2100 and 2300 degrees F and at pressures of between 10 and 30 ksi.

21. (original) The method of claim 13 further comprising the step of performing a rapid cooling of between 45 and 60 degrees F per minute to a desired temperature level after the hot isostatic pressing.

22. (original) The method of claim 13 wherein the step heat treating the high pressure turbine component comprises a heat treatment of between 2 to 4 hours at temperatures of between 2000 and 2200 degrees F followed by a second heat treatment of between 16 to 24 hours at temperatures of between 1300 and 1800 degrees F.

23. (previously presented) A method for repairing degradation on a turbine blade, the method comprising the steps of:

- providing repair powder material;
- mixing the repair powder material into a flow of gas, the gas at a temperature below a melt temperature of the repair powder material;
- accelerating the repair powder material mixed into the flow of gas; and
- directing the accelerated repair powder material to a target surface on the turbine blade, wherein the repair powder material deforms on the target surface to repair degradation on the turbine blade;
- vacuum sintering the turbine blade for between 2 and 4 hours at temperatures of between 2050 degrees F and 2300 degrees F;
- performing a hot isostatic pressing on the turbine blade for between 2 and 4 hours at temperatures of between 2100 and 2300 degrees F and at pressures of between 10 and 30 ksi; and
- heat treating the turbine blade between 2 to 4 hours at temperatures of between 2000 and 2200 degrees F followed by a second heat treatment of between 16 to 24 hours at temperatures of between 1300 and 1800 degrees F.